

XXVI. *Extract of a Letter from Mr. Humphry Marshall, of West Bradford, in Chester County, Pennsylvania, to Dr. Franklin, sent with Sketches of the Solar Spots, dated May 3, 1773.*

Redde, Feb. 3, 1774. **H**AVING for some time declined making any more observations, on the dark spots that appear on the Sun's disk, I now send a copy of the figures, I drew of them; which I desire may be presented to the Royal Society. Perhaps some one or more of the members may be pleased with them, in which case, I shall not think my labour lost. They were viewed with a reflecting telescope of inches, and their appearances, I think, pretty truly delineated, both as to magnitude and situation. Upon the whole, I am of opinion, that the spots are near the Sun's surface, if not closely adhering thereto, for these reasons; 1. That their velocities are apparently greatest near the center, and gradually slower towards each limb. 2. That the shape of the spots varies, according to their position on the several parts of the Sun's disk; those that appear broad, and nearly round, when on the middle, seeming, at their first appearance on the eastern limb, but as lines; and, as they advance to-
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wards the center, grow oval, then round, and, in their progress to the western limb, appear again as ovals and lines. My other remarks were, that the spots were twelve days and an half, and about two or three hours, in passing; that, though some continued visible from one limb to the other, a few would disappear, after having been visible several days; and others divided into parts; that scarce any spots ever appeared beyond what may be called the polar circles of the sun; and that the same spot never appeared, a second time, on the eastern limb, at least not in the same form and position.

The figures of the solar spots, mentioned in this letter, are sketches with black lead pencil, upon a very small scale. They are accompanied with short notes of the state of the weather at the time of each observation, and sometimes the height of the thermometer is mentioned. Among these meteorological remarks, the following seems the most extraordinary.

February 21st, 1773, Thermometer at 3 degrees below 0 at Sun-rise. This morning, had there been a snow on the ground, I believe it would have been as cold as it was January 2d, 1767, when the thermometer was 22 degrees below 0, there being a large snow on the ground at that time, and none now.